

The greatest monthly rainfall was 21.35 inches at Nellie, and none occurred at Bagdad. The greatest 24-hour rainfall was 5.84 inches at Newhall. Other heavy rainfalls were 5.20 inches at Stirling, 3.41 inches at Magalia, 3.64 inches at Mono Ranch, 3.80 inches at Kennett; and 3.22 inches at Cuyamaca.

Snowfall.—March, 1912, was a month of moderately heavy snowfall in the mountains. The prospects for water were very poor at the beginning of the month, but were much improved at the close. The run-off was light and the streams were unusually low. This condition was in marked contrast with March, 1911, when the snow cover was unusually deep and all the streams were running bank full.

Summit.—The following table shows the depth of snow on the ground at Summit on given dates in March during the period 1907 to 1912:

	Mar. 1.	Mar. 15.	Mar. 31.
	Inches.	Inches.	Inches.
1907.....	104	191	262
1908.....	116	130	60
1909.....	201	196	191
1910.....	65	38	68
1911.....	222	276	138
1912.....	26	81	53

SUNSHINE.

The following table gives the hours of sunshine and percentages of the possible:

Station.	Hours.	Percentage of possible.	Station.	Hours.	Percentage of possible.
Eureka.....	179	48	Sacramento.....	194	52
Fresno.....	219	59	San Diego.....	178	48
Los Angeles.....	204	55	San Francisco.....	158	43
Mount Tamalpais.....	172	46	San Jose.....	196	53
Red Bluff.....	225	61	San Luis Obispo.....	134	36

NOTES ON THE RIVERS OF THE SACRAMENTO AND SAN JOAQUIN WATERSHEDS DURING MARCH, 1912.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—All streams in this watershed averaged lower than for any corresponding month of which there is a record, except that the Sacramento River at Red Bluff was lower in March, 1898.

For the fourth consecutive month, which covers a period during which high stages are almost invariably maintained, with occasional floods and freshets, the rivers have remained unprecedentedly low, the average at many points on the Sacramento and other streams since December 1, 1911, showing but little departure from that of the summer months.

There were substantial rises in the Sacramento River from Redding to the mouth of the Feather River between the 7th and 15th, and a slight swell at points below Vernon between the 15th and 20th. There was practically no rain after the middle of the month, and by the 15th the river was falling at all points above Colusa, and by the 21st a general fall was in progress.

The rivers of the Feather-Yuba territory responded slightly to the rainfall, but there were no rises much in excess of 2 feet at any point along these streams, all of which averaged from 2 to 3 feet below the March normal stages and much below the lowest averages previously recorded in March.

The American River averaged 1.3 feet below the previous lowest average for the month. It rose slowly during the first few days of the month and culminated in a stage of 6.3 feet on the 7th. After this date it fell steadily.

The occurrence of snowfall in the mountains was practically coincident with the rains in the valleys, and at some points over a foot of snow fell as low as the 2,000-foot level. The effect of melting snow on stream flow was barely appreciable at any time during the month.

The water supply now in sight in the Sacramento watershed is probably the most limited that has ever before been known at this season of the year, and there is every indication that record breaking low-water stages will be reached during the coming summer and fall in all streams and that there will be an unusual scarcity of water for agricultural and mining purposes.

Lower San Joaquin watershed.—The rainfall of the San Joaquin drainage basin, like that of the Sacramento, was mostly confined to the first half of the month. It was, however, more copious, and along many of the streams the normal for the month was exceeded. This was notably so in the upper reaches of the San Joaquin and in the headwaters of the Mokelumne, Tuolumne, and Stanislaus. In the lower Mokelumne and in the Calaveras and the San Joaquin below Lathrop the rainfall was deficient. While all streams in this watershed showed the effects of the rainfall there was in no case a rise greater than 2 feet. From the 18th to the end of the month the rivers fell steadily, and the average for all streams is the lowest on record for the month.

There will probably be a marked shortage of water at all points in this watershed during the late summer and fall and an absence of the usual June freshets.

NOTES ON THE STREAMS OF THE UPPER SAN JOAQUIN WATERSHED.

By W. E. BONNETT, Local Forecaster.

As might be expected in the driest of recent years, the streams in the upper San Joaquin watershed were lower than they have been for many years. Notwithstanding precipitation during the month was considerably in excess of the normal for March, there was very little run-off and but little change in the streams.

In the Kaweah, the range from lowest to highest water was only 0.3 foot; in the Kings, 0.5; in the San Joaquin at Friant, 1.5 feet; and at Firebaugh, 1.2. At Merced Falls on the Merced there was a range of 1.8 feet. The highest water in the upper San Joaquin occurred at Friant on the 7th and at Firebaugh on the 9th. The highest stages in the Merced and Kings occurred a few days later than this, while the Kaweah apparently was not affected by the several storms of the month as its stage remained remarkably uniform throughout. All streams in the district except the Kaweah fell during the latter half of the month.

WEATHER CONDITIONS AT LOS ANGELES, CAL.

By A. B. WOLLABER, Local Forecaster.

The drought which prevailed in southern California during the closing months of 1911 and January and February, 1912, and which was the most severe of any on record since the establishment of this station, was effectually broken by the copious rains which fell over this section from March 1 to 13, inclusive, and which resulted in over 6 inches of rain in Los Angeles, and correspondingly generous amounts in the outlying districts south of the Tehachapi.